

DEPARTMENT OF NOTES. REVIEWS, ETC.

It is the purpose, in this department, to present from time to time brief original notes, both of methods of work and of results, by members of the Society. All members are invited to submit such items. In the absence of these there will be given a few brief abstracts of recent work of more general interest to students and teachers. There will be no attempt to make these abstracts exhaustive. They will illustrate progress, without attempting to define it, and will thus give to the teacher current illustrations, and to the isolated suggestions of suitable fields of investigation.—[Editor.]

SOME METHODS OF PREPARING INSECTS FOR DEMONSTRATION PURPOSES

In teaching entomology it is of considerable importance to provide the students with as much material as possible to aid them in identifying their specimens, to give them an adequate idea of the great number of insects available for study, and to impress upon them the value of insects for the demonstration of biological principles. It is therefore the custom to display upon the walls of the laboratory or on tables collections of insects which will serve these purposes. In the following paragraphs I wish to describe, with the aid of photographs, three methods that have been used in the entomological laboratory at the University of Michigan, which may be of interest to other teachers of the subject.

1. A method of displaying insects for purposes of identification. Photograph 1 shows a laboratory table, two feet wide and five feet long. On it is a removable frame which will carry six Comstock boxes inclined in such a way that their contents can be studied with ease. These boxes can be removed and others put in their place without difficulty. It is thus possible to display a large number of insects in a small space with the use of a laboratory table from which the frame that holds the insect cases can be removed and which therefore becomes available for other purposes. The framework above the boxes may be used for posting laboratory directions, notices, drawings, etc.

2. A method of displaying the life histories of insects. As is well known, an excellent method of displaying stages in the life histories of insects is to place the various stages in Riker mounts. These may be given to the students for study but may also be grouped in such a way as to make beautiful and instructive wall ex-

hibitions. Photograph 2 shows a number of such groups, each group consisting of three or four mounts and arranged according to the economic importance of the insects represented, e. g., one group contains insects of the household (clothes moth, cheese skipper and carpet beetle) and another includes three shade tree pests (the horned tail, tussock moth, and leopard moth.) Students and visitors show considerable interest in these exhibits and, perhaps unconsciously, derive a great deal of information from them.

3. A method of displaying insect galls. Biologically the gall insects are among the most interesting of the whole class. The insect galls may be prepared for exhibition in the following manner (see Photo 3.) Racks three feet long, eight inches high, and two and one half inches deep are made, with the top piece hinged at both ends. Strips on the edges at the top and bottom prevent the bottles from falling out. Galls on stems are dried and placed in large mouthed vials about two inches in diameter, and a label is placed at the bottom. Galls on leaves are preserved in 10% formalin and placed in bottles about two and one half inches in diameter. The bottles or vials fit loosely enough in the racks so that they can be turned around and all sides of the galls can thus be examined but their removal is prevented by the strip near the top and bottom. If, however, it becomes necessary to take out a bottle, the hinge at one end of the top can be disjoined and the desired specimen removed. A background of white cardboard helps to bring out the characteristics of the galls. Such a rack as that described may, of course, be used for other material both zoological and botanical.

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THE SEDGWICK-RAFTER OCULAR MICROMETER AND ITS USES

In 1889 Prof. W. T. Sedgwick and Mr. George W. Rafter developed the so-called Sedgwick-Rafter method for enumerating microscopic organisms to be found in water,—a procedure which has since come into general use among biologists, chemists and engineers investigating or in charge of water supplies, and has been incorporated as a part of the Standard Methods of Water Analysis adopted